

## **REMARKS**

Reconsideration and withdrawal of the objections to and the rejections of this application in view of the remarks herewith, is respectfully requested, as the application is believed to be in condition for allowance.

### **I. Status of the Claims and Formal Matters**

Claims 1, 5-26, 28-32 and 38-60 are under examination in this application upon entry of the amendments presented herein. It is submitted that the claims, herewith and as originally presented, are patentably distinct over the prior art cited by the Examiner, and that these claims were in full compliance with the requirements of 35 U.S.C. §112.

### **II. THE REJECTIONS UNDER 35 U.S.C. § 112 ARE OVERCOME**

#### **A. Rejection of Claims 1, 5-26, 28-32 and 38-60 under 35 U.S.C. § 112, First Paragraph.**

Claims 1, 5-26, 28-32 and 38-58 under 35 U.S.C. § 112, first paragraph, as failing to convey that the inventors were in possession of the claimed invention.

With respect to Claims 1 and 40-42, the Office Action noted that “[a]dequate support is not found in the specification for not using etching as in claims 59 or 60 when using a photoresist processing technique as in claims 1 and 40-42.” Among other places, paragraph [73] of the specification states “[i]f the lithographic process produces a thick enough layer, the photosensitive layer itself can be used as the mold for polymer casting and subsequent fabrication.(emphasis added)” Further, this is the process illustrated in Figure 3. As such, etching is an optional step as noted in paragraph [73]. Accordingly, the objection under 35 U.S.C. § 112, first paragraph, with respect to Claims 1 and 40-42 is overcome and withdrawal thereof is respectfully requested.

Additionally regarding Claim 1, it was noted that the first and second layers can be suitable for attachment and culturing of animal cells as was previously claimed. However, this is certainly not required. As noted in paragraph [10], “[b]oth scaffolds can be made of a material that is suitable for attachment and culturing of cells.(emphasis added)” Clearly, this statement taken in context demonstrates that the inventors contemplated the scaffolds not necessarily

needing to be suitable for attachment. Accordingly, the objection under 35 U.S.C. § 112, first paragraph, on this point is not proper and withdrawal thereof is respectfully requested.

Claims 25, 28 and 58 were objected to as not found in the specification. Regarding Claim 25, the process illustrated in Figure 3 embodies the method. For limitation (a) of Claim 25, Figure 3 illustrates forming a mold using a semiconductor manufacturing process then casting the first layer on the mold. In particular, the “starting wafer” has a “thick resist” applied, and the thick resist is patterned to form a mold, see the left column of Figure 3. This is a semiconductor manufacturing process as is described in the specification. In the right column of Figure 3, the patterned thick resist has a biodegradable polymer poured therein, and the polymer is removed to create the first layer. For limitations (b) and (c) of Claim 25, Figure 3 illustrates first and second layers being bonded together in the last illustration of the series. Hence, not only is Claim 25 well supported, but Claims 28 and 58 are similarly well-supported for the same reasons. Accordingly, the rejection under 35 U.S.C. § 112, first paragraph, with respect to Claims 25, 28 and 58 is improper and withdrawal thereof is respectfully requested.

Regarding Claims 25, 38 and 45, they were also objected to as being unsupported by the specification. Claim 25 recites at least one of the channels is about 200 microns in width and about 200 microns in depth. Support for this can be found at paragraphs 78, 109, 154, 157-159, 162, 183-185, 193 and 196 among other places. For example, paragraph [97] recites a method that can “produce patterns 10 to 500 microns thick. (emphasis added)” It is noted that the “patterns” are the channels. Further, paragraph [193] recites “channels of widths between 30-200  $\mu\text{m}$ .” Claims 38 and 45 are similarly supported. Accordingly, the rejection under 35 U.S.C. § 112, first paragraph, with respect to Claims 25, 38 and 45 is improper and withdrawal thereof is respectfully requested.

Claim 32 was objected to as the specification lacking support for optically creating a pattern in a light sensitive material to form a mold. However, paragraphs [71] to [75] in a section entitled “Silicon Mold Fabrication”, among other places, provide detail about exactly this type of process. In particular, paragraph [72] recites “a layer of photoresist applied to the surface... and the wafer is then exposed to ultraviolet or other short-wavelength light through a semi-transparent mask.” Paragraph [73] elaborates as follows “the photosensitive layer itself can be used as the mold for polymer casting and subsequent fabrication.” Thus, the noted

limitation of Claim 32 is well-supported and withdrawal of the objection is respectfully requested.

Claim 50 was objected to for lack of support. It recites a resist layer having a thickness of at least 10 microns. Paragraph [94] notes resist layers as thin as 1 or 2 microns and paragraph [97] a 250 micron thick resist layer. Hence, the specification clearly illustrates many different thicknesses of resist, including those thinner and thicker than the 10 microns recited in Claim 50. As a result, the limitation of the thickness being as small as 10 microns or larger is disclosed. Thus, the objection is improper and withdrawal is respectfully requested.

**A. Rejection of Claims 1, 5-26, 28-32 and 38-60 under 35 U.S.C. § 112, Second Paragraph.**

Claims 1, 5-26, 28-32 and 38-60 were rejected under 35 U.S.C. § 112, second paragraph, as being indefinite.

Regarding Claim 1, it recites "a photoresist processing technique that includes: i) coating the substrate material with a photoresist; and ii) forming a pattern in the photoresist, and casting the first layer on the respective mold." These limitations are very well understood by those of ordinary skill and include the necessary steps as illustrated in Figure 3 and discussed above. Accordingly, the rejection under 35 U.S.C. § 112, second paragraph, with respect to Claim 1 and each of the claims depending therefrom is improper and withdrawal thereof is respectfully requested.

Regarding Claims 25 and 28, which recites a semiconductor manufacturing process, the specification provides many examples of such processes. However, the claims are not so limited as one of ordinary skill would, upon review of the subject application at Figure 3 and other places, be able to utilize an infinite variety of semiconductor processes to practice the claimed invention. The terms used in the claims bear a heavy presumption that they mean what they say and have the ordinary meaning that would be attributed to those words by persons skilled in the relevant art. *Texas Digital Sys., Inc. v. Telegenix, Inc.*, 308 F.3d 1193, 1202 (Fed. Cir. 2002). Here, this ordinary meaning is well-known.

Further, the specification of the patent is an excellent source of meaning for the claims. *Novartis Pharmaceuticals Corp. v. Abbott Labs*, 375 F.3d 1328, 1334-35 (Fed. Cir. 2004). The specification "may act as a sort of dictionary, which explains the invention and may define terms used in the claims." *Markman*, 52 F.3d at 979. These principles are applicable here. Since the

specification has a plurality of examples that provide with certainty a clear understanding, the objection is improper. Accordingly, the rejection under 35 U.S.C. § 112, second paragraph, with respect to Claims 25, 28 and each of the claims depending therefrom is improper and withdrawal thereof is respectfully requested.

Regarding Claim 32, it recites optically creating a microfluidic channel in a light sensitive material on a substrate. The specification has multiple such processes clearly described therein as noted above. Thus, there is ample support for this claim limitation. There is no doubt as to the meaning of the recited process standing alone and even more so in view of the context of the supporting specification. Accordingly, the rejection under 35 U.S.C. § 112, second paragraph, with respect to Claim 32 and each of the claims depending therefrom is improper and withdrawal thereof is respectfully requested.

Claim 58 recites at least a first layer is fabricated by forming a mold using a semiconductor manufacturing process to then cast the at least a first layer on the mold. Again, the specification has multiple such processes clearly described as noted above. Thus, there is ample support for this claim limitation. There is no doubt as to the meaning of the recited process standing alone or in view of the context of the supporting specification. Accordingly, the rejection under 35 U.S.C. § 112, second paragraph, with respect to Claim 58 is improper and withdrawal thereof is respectfully requested.

Regarding the second layer being suitable for attachment and culturing of cells, as noted above, it is simply not essential. In paragraph [10], the specification recites “[b]oth scaffolds can be made of a material that is suitable for attachment and culturing of cells.(emphasis added)” Clearly, this statement taken in context demonstrates that the inventors contemplated the scaffolds not necessarily needing to be suitable for attachment. Accordingly, the objection on this point is not proper and withdrawal thereof is respectfully requested.

#### **Request for Interview**

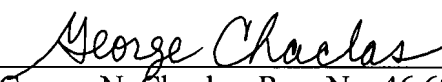
If any issue remains as an impediment to allowance, a further interview with the Examiner and SPE are respectfully requested; and, the Examiner is additionally requested to contact the undersigned to arrange a mutually convenient time and manner for such an interview.

**CONCLUSION**

In view of the amendments and remarks herewith, the application is in condition for allowance. Favorable reconsideration of the application, reconsideration, and withdrawal of the objections to and rejections of the application, and prompt issuance of a Notice of Allowance are respectfully requested.

Respectfully submitted,

Date: July 27, 2007

  
\_\_\_\_\_  
George N. Chaclas, Reg. No. 46,608  
Attorney of Record  
EDWARDS ANGELL PALMER & DODGE LLP  
Intellectual Property Practice Group  
P.O. Box 55874  
Boston, MA 02205  
Telephone: (401) 276-6653  
Facsimile: (617) 439-4170